

## FOREWORD

### An Overview of Research Activities in Biodiversity Conservation Project

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Biodiversity Conservation Project (BCP) is a joint technical cooperation project between the governments of Indonesia and Japan. The phase II project has been launched since July 1998 following three years phase I project.

The project has been implemented by three organizations, in Indonesian side, Research Center for Biology (RCB) of Indonesian Institute of Sciences (LIPI) who acts as the scientific authority of biodiversity conservation in Indonesian government, Directorate General of Directorate General of Forest Protection and Nature Conservation (PHKA) of Ministry of Forestry who is the major implementing body for biodiversity conservation and in Japanese side, by Japan International Cooperation Agency (JICA).

The overall goal of BCP is to support the achievement of BAPI (Biodiversity Action Plan for Indonesia), which was published in 1993 as a national guideline for the conservation of Indonesian biodiversity. The project aims at strengthening institutional capacity of RCB-LIPI and PHKA for biodiversity conservation. At the same time, it is also aiming at enhancing the collaboration of two organizations through project activities.

#### Background

Considering the importance of Indonesian biodiversity, one of the richest in the world with a various distinct ecosystems ranging from the ice fields and alpine meadows to a wide variety of humid lowland rain forests, mangroves and peat swamps, the government of Indonesia, Japan and the United States agreed to launch the trilateral cooperation program for the conservation of Indonesian biodiversity in 1993, following which the US government decided to set up the Indonesia Biodiversity Foundation (Yayasan Kehati), while the government of Japan decided to launch a technical cooperation project and a grand aid program to provide facilities and equipment.

According to above agreement, Biodiversity Conservation Project (BCP) Phase I was launched as a technical cooperation project between the governments of Indonesia and Japan in July 1995. During BCP Phase I, foundations of project activities to come afterwards, for example, some permanent monitoring sites for forest study or taxonomical/ecological study of birds and insects, the draft management plan of GHNP, a prototype database system for protected areas and basic knowledge and information about the society and the living of local people around GHNP, have been established. Facilities such as zoology research center of RCB-LIPI in Cibinong, the head office of GHNP in Kabandungan and a research station in Cikaniki, the Nature Conservation Information Center (NCIC) of PHKA in Bogor were also constructed in 1997 under the Japanese grand aid program.

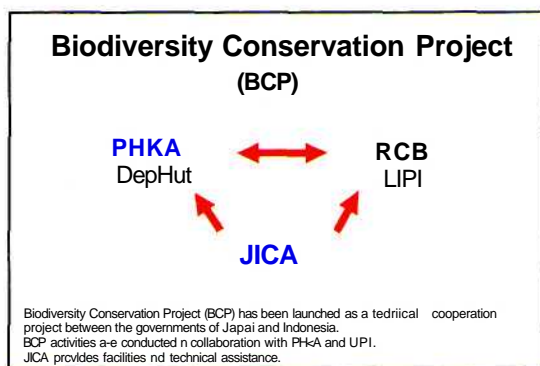


Figure 1

Following the end of Phase I, the phase II project started since July 1998. It is scheduled to be terminated by the end of June 2003.

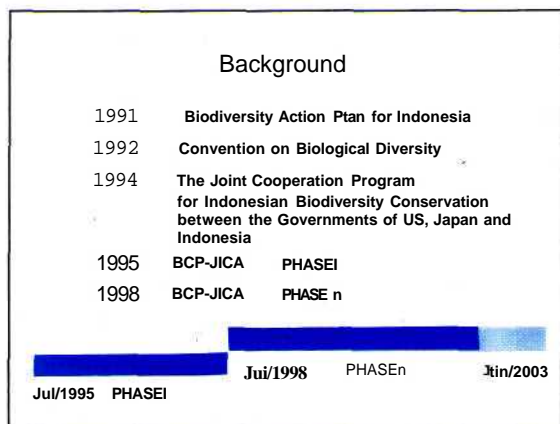


Figure 2

### Three major components of BCP II

Activities in BCP II can be summarized into three major components, research and survey, Gunung Halimun National Park (GHNP) management and information system.

The aim of research and survey component is to enhance research activities on biodiversity in RCB-LIPI, both in-situ and ex-situ. Researches conducted in the project include those on fauna and flora, ecosystem, endangered species, genetics, ethno-sociology and ethno-botany, detail of the activities will be elaborated later.

The overall target of national park management component is to improve the management of GHNP as a model for in-situ conservation. The management plan of GHNP has been established based on the scientific and sociological information collected during BCP phase I. In Phase II, the following four activities, developing eco-tourism, enhancing endangered species conservation, promoting research activities in the park and developing environmental education program, are being implemented in accordance with the management plan. Enhancing collaboration between researchers and park managers, rangers is another important target

expected in this component.

The aims of information system component is to develop database systems both for researchers as well as those stakeholders who are engaged in the conservation of protected areas and/or endangered species. In this component, two data centers, Biodiversity Information Center (BIB) in RCB-LIPI and Nature Conservation Information Center (NCIC) in PHKA, are established and database systems accommodating GIL have been developed in both of data centers. The main function of them are collecting, storing, analyzing, processing and providing with the data on biodiversity.

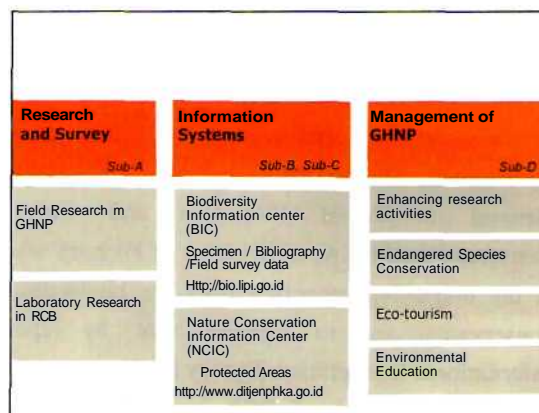


Figure 3

### Research activities by BCP II

According to the PAM (Project Design Matrix) of the project, BCP research activities have been developed both in the field and in the laboratories. Field activities are concentrated in Gunung Halimun National Park (GHNP). Basic infrastructures for research activities such as the laboratories and collection rooms with its advanced equipment in Cibinong zoology research center, a research center and a canopy trail in Cikaniki-GHNP have been constructed and arranged by Japanese grand aid program.

Under the framework of JICA technical cooperation, more than 30 researchers were assigned as counter part of the project. Dr. Sih Kahono has been supervising research activities under the project as a research coordinator, while a

long term expert, Dr Okayama whose specialty is genetics on mammals, as well as more than 10 short term experts has been dispatched to provide technical assistance and suggestions for the counterpart researchers.

GHNP was selected in BCP as a model area for comprehensive field surveys on biodiversity. In the national park, designated in 1992 covering a total area of 40,000 hectares, there remains the largest and most complete sub-mountainous tropical rain forest in Java. It ranges from 500 to 1,900 meters above sea level. Huge rasamala (*Altingia excelsa*), puspa (*Schima walichii*) and oaks (*Lithocarpus spp.*) dominate in the forest, on which many endangered species such as Javan gibbons (*Hylobates moloch*), leopard (*Panthera pardus*) and Javan hawk-eagle (*Spizaetus bartelsi*) depend for their lives.

As of the end of October 2002, around 40 research activities have been carried out or on going by RCB-LIPI researchers or by other researchers from universities or institutes.

1. Researches on genetics and breeding of potential species.

- 1) Development of sex determination method for birds
- 2) Development of pork detection method from foods
- 3) Development of species identification method for gibbon
- 4) Development of species identification method for tiger
- 5) Development of native place identification for orangutan
- 6) Development of native place identification for slow loris
- 7) Population phylogeny of barking deer
- 8) Sequence variation and genetic diversity of parrots
- 9) Population phylogeny of hawksbill turtle
- 10) Population phylogeny of Sumatran elephant
- 11) Population phylogeny of bat

- 12) Species phylogeny of lizard
- 13) Species phylogeny of Lauraceae
- 14) Species phylogeny of Thricosanthes
- 15) Species phylogeny of Goodyerinae
- 16) Species phylogeny of Bamboo

2. Researches on ecologically and economically important species in the laboratory.

- 1) Nutrient analysis for primates in GHNP
- 2) Isolation and identification of microorganisms in GHNP
- 3) Explore the medicinal plant in GHNP
- 4) Microbial assessment and its role in GHNP
- 5) Scanning electron microscopy of spores of monascus
- 6) The ornamentation and shapes of mushroom spores
- 7) Extraction of bio active components of medicinal, aromatic and useful plants in GHNP
- 8) Development of methods for plantation and tissue culture of rattan and other selected species

3. Researches on ecologically and economically important, and endangered species in the field.

- 1) Monitoring of leopard in GHNP
- 2) Monitoring of raptors in GHNP
- 3) Monitoring of gibbon in GHNP
- 4) Medicinal plants in GHNP
- 5) Traded insects in GHNP
- 6) Ecological study of *Asplenium nidus* in GHNP
- 7) Ecological study of *Apis dorsata* in GHNP
- 8) Preliminary study of mammals and plants in the "corridor" of Cianten GHNP
- 9) Seed bank of GHNP
- 10) Ecological study of fresh water insects in GHNP
- 11) Ecological study of fish in GHNP and adjacent area
- 12) Habituation study of primates in GHNP

4. Inventory of important taxa.

- 1) Inventory survey for mammal
- 2) Inventory survey for bird
- 3) Inventory survey for herpetofauna
- 4) Inventory survey for fresh water fish
- 5) Inventory survey for mollusk
- 6) Inventory survey for insect
- 7) Inventory survey for orchids
- 8) Inventory survey for mushroom
- 9) Inventory survey for microorganisms
- 10) Inventory survey for flowering plants
- 11) Inventory survey for rattan

5. Monitoring of forest ecosystems.

- 1) Monitoring of forest dynamics in GHNP
- 2) Monitoring of insect fauna in GHNP
- 3) Monitoring of bird in GHNP
- 4) Monitoring of leopard in GHNP
- 5) Monitoring of mountain rat in GHNP
- 6) Monitoring of raptors in GHNP
- 7) Monitoring of litter decomposition in GHNP

With outputs of above activities, considerable scientific contribution to the biodiversity

conservation have been achieved, which include compiling an inventory of mammals in Indonesia, a series of inventories of species in GHNP, providing the current status; distribution, habitat, population estimates, of some endangered species in GHNP such as leopard and Javan hawk-eagle and identifying local population of Orangutan or Asian elephant using DNA techniques.

Through the project activities, more than 100,000 insect specimens for ecological study, more than 5,000 animal specimens for taxonomical study, more than 2,000 animal specimens for DNA analysis, and more than 2,000 plant specimens were collected. More than 100 potential microorganisms were also isolated.

The scientific information developed by researchers in GHNP has been utilized in practical park management, such as compiling the management plan, preparing materials, like booklets, visitor guidebooks and maps for environmental education or eco-tourism. The outputs of research activities are expected to serve the park management as the scientific reference data in various kinds of park management activities.